

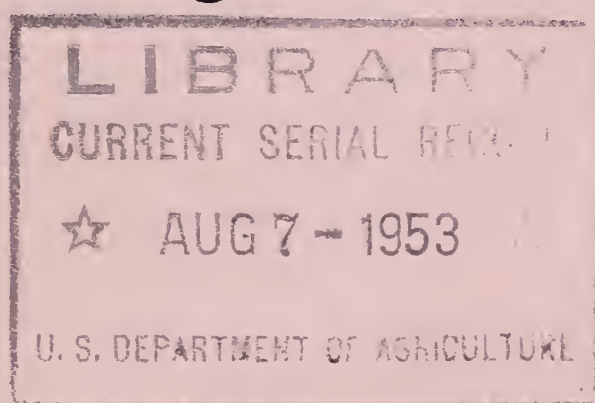
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X **How to Reduce
Losses from**

PHONY DISEASE of PEACHES

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Bureau of Entomology and Plant Quarantine,
Agricultural Research Administration
U. S. DEPARTMENT OF AGRICULTURE
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PHONY DISEASE is the most destructive virus disease of peaches in the United States. It occurs from North Carolina south and west to central Texas and as far north as southern Illinois in the Mississippi Valley. South of the latitude of Columbia, S. C., Atlanta, Ga., Birmingham, Ala., and westward to eastern Texas, it causes damage each year, and losses may be severe unless control measures are taken.

Sharpshooters Spread Phony Disease

Phony disease is spread by certain leafhoppers commonly known as sharpshooters. Homalodisca triquetra and Oncometopia undata are the principal vectors. The disease spreads rapidly only in areas where triquetra occurs.

These sharpshooters are general feeders, infesting many kinds of weeds and field crops as well as shrubs and trees. They infest healthy peach trees only during spring and fall, and then sometimes in large numbers, but they may occur on "sick" trees at any time during the growing season.

Scientists have found that two other species, Cuerna costalis and Graphocephala versuta, also spread phony disease under experimental conditions, but these species are not known to be important in its natural spread.

Wild Plums a Reservoir for Outbreaks

Phony disease also occurs in wild plum thickets, but they seldom show symptoms of the disease. A chemical test has been developed for identifying the disease in wild plums. Surveys by this method have shown that the disease occurs in plum throughout and even beyond the area in which it now occurs in peach. In areas of high infection in peach most of the plum thickets commonly harbor the disease. Such thickets may therefore threaten healthy peach trees in the vicinity.

Control in Established Orchards

1. Remove promptly from orchards all phony-diseased peach trees that can be identified.
2. Maintain orchards in good, vigorous condition and remove weak or "sick" trees as they appear.
3. Destroy wild plum thickets within several hundred yards of orchards.

After the virus has been introduced into a tree by the insect vector, at least 15 months is required for the tree to develop symptoms of the disease. Thus, newly infected trees remain in an orchard even though all those in which disease could be identified have been removed.

Weak or "sick" trees attract the insect vectors into an orchard. The subsequent feeding of this increased vector population causes the disease to spread rapidly.

Wild plums are not easily destroyed, and persistence is required to achieve satisfactory results. The best way to destroy them is to use a herbicide. A product containing ammonium sulfamate, known as Ammate, is very effective. Use 1 pound to 1 gallon of water, and spray the thickets either when in full bloom or when in leaf early in the summer. It is important to cover them completely. Less spray material will be needed if the thickets are cut in the fall or winter and the stumps are sprayed as soon as the sprouts have attained several inches of growth.

If it is not possible to destroy all wild plums in the vicinity of an established orchard, they should be eradicated for at least several hundred yards. Eradication of wild plums nearby cannot be expected to eliminate phony disease from orchards in which infection already occurs, even when the peach trees are removed at the same time. Spread within the orchard will continue from new cases of the disease that could not be identified and removed. Consistent practice of the procedures recommended here will retard its spread.

Protection of New Plantings

1. Set new plantings as far away from other plantings as practicable, to avoid formation of large areas of dense tree population.
2. Do not plant new peach orchards near infected peach trees or near wild plum thickets.

If it is necessary to remove either old orchards or wild plum thickets, this should be done at least a year before the new planting is made. Once the insect vectors have acquired the virus, they retain it as long as they live. Since these vectors pass the winter as adults, there is danger that overwintered insects in the vicinity of a new planting are already infective, even though the source from which they acquired the virus has been removed.

Effective Control Requires Group Action

Control of phony disease is a problem requiring group action by all the growers in an area. Orchards from which phony trees are not removed are a hazard to other orchards nearby. The prompt removal of diseased trees from orchards on an area-wide basis will permit peaches to be produced profitably even where spread of the disease is most rapid. On the other hand, orchards in severely affected areas where no control is practiced are frequently ruined by the time one or two crops have been harvested.

Control vs. No Control

Two peach orchards in central Georgia were studied to compare results of control versus no control. In one orchard control was practiced as well as in surrounding orchards, but

in the other orchard there was no control either within the orchard or in those around it. The two orchards were planted to the same variety, and both were set in January 1945.

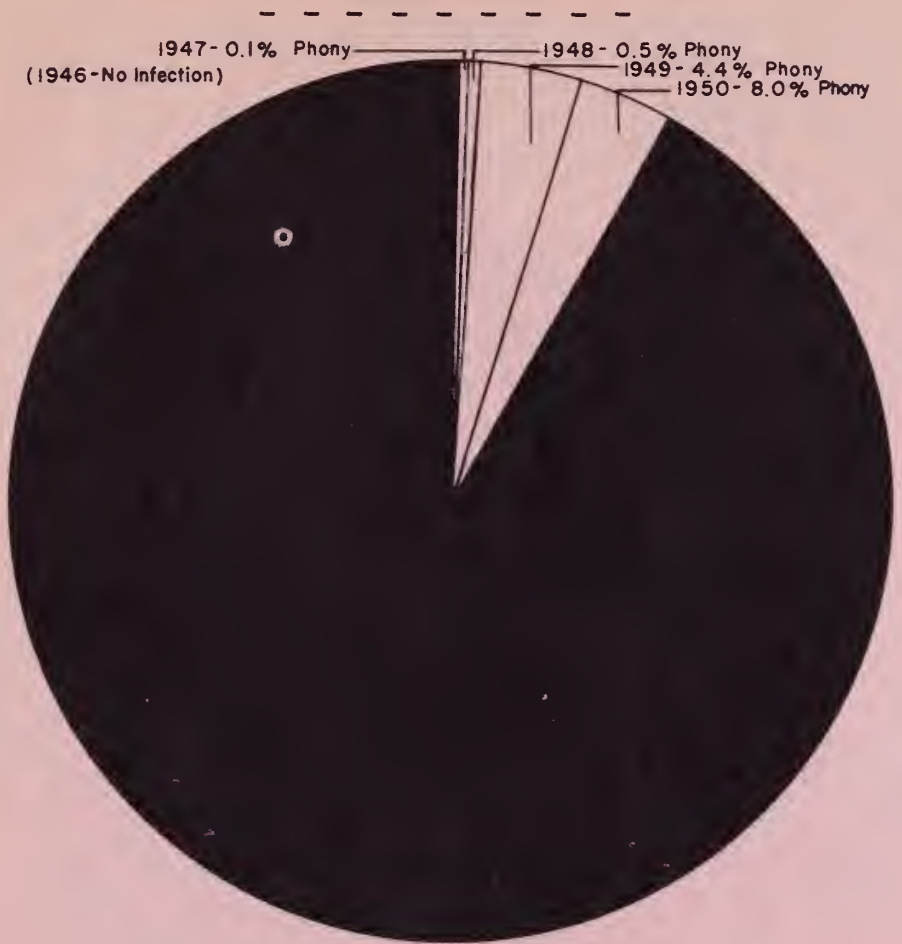
In the orchard where no control was practiced, phony disease first appeared in 1946, when 6 trees out of every 1,000 were diseased. The infection increased rapidly until by 1950 a total of 775 trees per 1,000 was diseased. In contrast, in the orchard where control was diligently practiced, the first phony trees appeared in 1947, when 1 tree out of every 1,000 was affected. The number of diseased trees found increased each year, but by 1950 only 80 trees per 1,000 had been lost.

In the orchard having no control, not only did the disease make its appearance a year earlier, but it built up much faster than in the orchard in which control was practiced. The first orchard became worthless and was removed at the end of the sixth growing season. The orchard in the controlled area is still in production. By continued group control practices this orchard should yield harvests through the normal life expectancy for peach trees in that area.

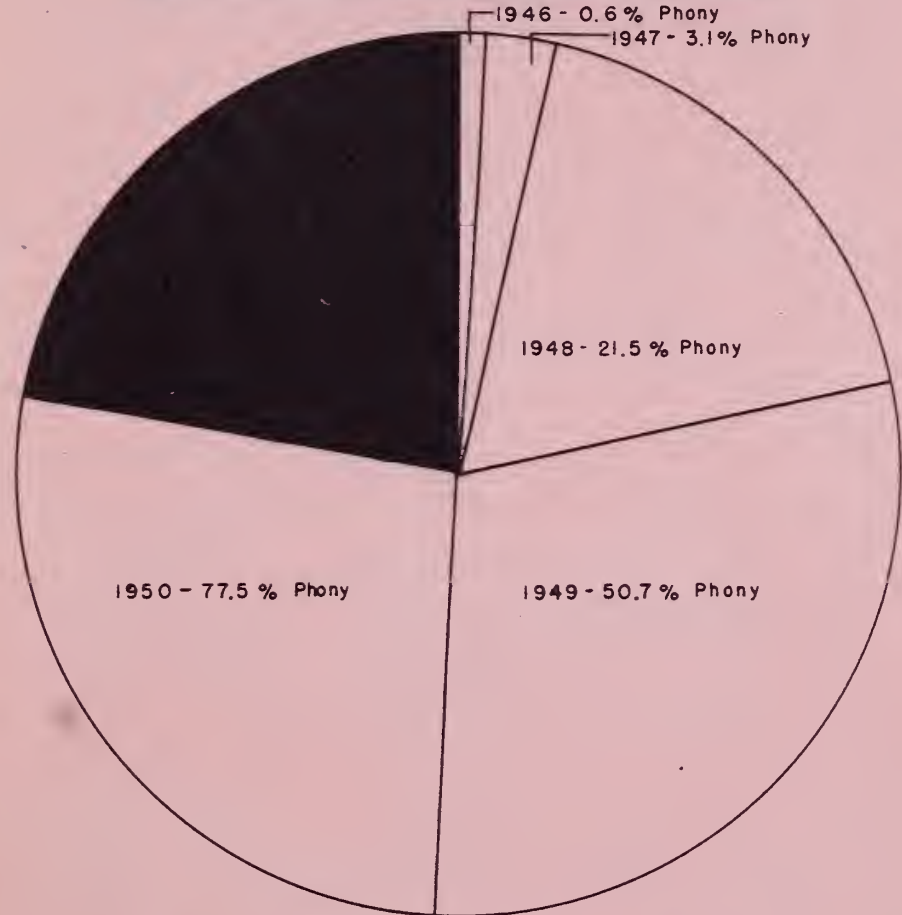
See page 7 for a graphic comparison of these two orchards.

CONTROL vs. NO CONTROL IN PEACH ORCHARDS UNDER TEST

Cumulative Infection Percentages Shown Annually



Orchard With Phony Diseased Trees Removed Annually



Orchard With Phony Diseased Trees Not Removed

Recommended Control Practices

You, as a peach grower, can control phony disease by following these recommendations:

1. Destroy wild plums growing near your orchard.
2. Remove weak or "sick" trees from your orchard each year, preferably before the first of July.
3. Locate new orchards or blocks as far as possible from existing orchards. At least a year before setting the trees destroy all wild plums within 300 or more yards, the farther the better.
4. Have your orchards inspected each year by competent inspectors, and delimb all trees showing even the slightest symptoms of phony disease.
5. Remove stumps of phony trees promptly. The insect vectors seem to be especially fond of twigs that may be left on stumps, and they reinvade the orchards about the middle of September, after weeds and crop plants have died.
6. Encourage your neighbor to follow the same control procedure. To be effective, control of phony must be carried out on an area-wide or community-wide basis.

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Prepared by the Phony Peach and Peach Mosaic Control Project, Bureau of Entomology and Plant Quarantine.
This Program Aid ^{8a}supersedes PA-110. //